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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/473,575	12/28/1999	Darrell D. Boggs	042390.P6871	1163

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EXAMINER	
VO, LILIAN	

ART UNIT	PAPER NUMBER
2127	15

DATE MAILED: 02/12/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/473,575	Applicant(s) BOGGS ET AL.	
	Examiner Lilian Vo	Art Unit 2127	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 November 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *62, 63, 65, 67 - 70, and 84 – 97* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *62, 63, 65, 67 - 70, and 84 – 97* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 13-14
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 62, 63, 65, 67 - 70, and 84 – 97 are presented for examination. Newly added claims 84 – 97 have been considered. Claims 1 – 61, 64, 66 and 71 – 83 have been cancelled.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 63, 65, 67 – 70, 85 – 90 and 92 – 97 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

4. **Claim 63** recites the limitations "the entire" and "the thread" in line 2, page 3. There is insufficient antecedent basis for this limitation in the claim.

5. **Claim 65** recites the limitations "the active" and "the respective portion" in lines 4, 8 - 10, pages 4 - 5. There is insufficient antecedent basis for this limitation in the claim.

6. **Claim 68** recites the limitation "the stalled instructions" in lines 2 -3, page 4. There is insufficient antecedent basis for this limitation in the claim.

7. **Claim 85** recites the limitations "the entire" and "the thread" in line 3, page 4. There is insufficient antecedent basis for this limitation in the claim.

8. **Claim 86** recites the limitations "the active" and "the respective portion" in lines 4, 9 - 11, pages 4 - 5. There is insufficient antecedent basis for this limitation in the claim.

9. **Claim 88** recites the limitation "the stalled instructions" in lines 2 -3, page 5. There is insufficient antecedent basis for this limitation in the claim.

10. **Claim 92** recites the limitations "the entire" and "the thread" in line 3, page 5. There is insufficient antecedent basis for this limitation in the claim.

11. **Claim 93** recites the limitations "the active" and "the respective portion" in lines 4, 9 - 11, pages 5 - 6. There is insufficient antecedent basis for this limitation in the claim.

12. **Claim 95** recites the limitation "the stalled instructions" in line 2, page 6. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

13. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

14. Claims 62, 63, 84 – 85 and 91 - 92 are rejected under 35 U.S.C. 102(b) as being anticipated by Prigge (US 5,623,471).

15. Regarding **claim 84**, Prigge teaches a method for allocating resources by a processor, the method comprising:

fetching instructions from one or more threads based upon a current processing mode (col. 3, lines 27 – 57, figs. 2 - 4); and

performing allocation in a resource for the instructions based upon the current processing mode (col. 2, lines 4 – 9, col. 3, lines 20 – 31, figs. 2 - 4).

16. Regarding **claim 85**, Prigge teaches the method of claim 84 further comprising:

assigning the entire resource to the thread that is active if the processing mode is single threading (fig. 3, fig. 4, 402, 404); and

assigning a portion of the resource to each of the threads running concurrently if the current processing mode is multithreading (fig. 2, fig. 4, 402, 424).

17. **Claims 62, 63 and 91 - 92** are rejected on the same ground as stated in claims 84 - 85 above.

Claim Rejections - 35 USC § 103

18. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

19. Claims 65, 67 – 70, 86 – 90 and 93 - 97 are rejected under 35 U.S.C. 103(a) as being unpatentable over Prigge (US 5,623,471) as applied to claims 84 – 85 above, in view of Levy et al. (US Pat. Application Publication 2001/0004755 A1, hereinafter Levy).

20. Regarding **claim 86**, although Prigge teaches of single threading and multithreading processing mode, he fails to teach the additional limitations as claimed. Nevertheless, Levy teaches:

allocating an amount of entries for the instructions from each thread in a respective portion of the resource if respective portion of the resource has sufficient available entries (page 6, paragraph 0074, page 7, paragraph 0084, page 8, paragraph 0089, page 14, paragraph 0140), and

activating at least one stall signal if the resource does not have sufficient available entries (page 7, paragraph 0084, page 11, paragraph 0120, page 8, table 3).

It would have been obvious for one of ordinary skill in the art, at the time the invention was made, to combine the teachings of Prigge and Levy so that resource availability can be allocated more efficiently.

21. Regarding **claims 87 and 89**, Prigge did not teach the additional limitation as claimed. Nevertheless, Levy teaches the instruction fetch stalling generally as a condition that can occur in a processor and when there is insufficient resource available for performing function of the current threads (page 7, paragraph 0084, page 11, paragraph 0120, page 8, table 3).

It would be obvious for one of an ordinary skill in the art, at the time the invention was made, to perform corresponding functions and/or subsequent instructions from another thread if the current thread receives a stall signal. It would have been obvious for one of an ordinary skill in the art, at the time the invention was made to combine the teachings of Prigge and Levy to efficiently managing resource in a multiprocessing system.

22. Regarding **claim 88,** Prigge did not teach the additional limitation as claimed. Nevertheless, Levy teaches the instruction fetch stalling generally as a condition that can occur in a processor and when there is insufficient resource available for performing function of the current threads (page 7, paragraph 0084, page 11, paragraph 0120, page 8, table 3).

It would be obvious for one of an ordinary skill in the art, at the time the invention was made, to fetch the stalled instructions for the respective thread if the stall signal is activated. It would also have been obvious for one of an ordinary skill in the art, to repeat the step or to re-fetch the stalled instructions for the respective thread if the stall signal is received/activated. It would have been obvious for an ordinary skill in the art, at the time the invention was made to

combine the teachings of Prigge and Levy to efficiently managing resource in a multiprocessing system.

23. Regarding **claim 90**, Prigge did not teach the additional limitation as claimed. Nevertheless, Levy teaches the instruction fetch stalling generally as a condition that can occur in a processor and when there is insufficient resource available for performing function of the current threads (page 7, paragraph 0084, page 11, paragraph 0120, page 8, table 3).

It would be obvious for one of an ordinary skill in the art, at the time the invention was made, to recognize that the activation of stall signal is caused by the invalid instruction, in this case, insufficient resource. It would also have been obvious for an ordinary skill in the art, at the time the invention was made to recognize that if the stall signal for the respective thread is activated, then an invalid instruction must have been fetched to activate the stall signal. It would have been obvious for one of an ordinary skill in the art, at the time the invention was made to combine the teachings of Prigge and Levy to efficiently managing resource in a multiprocessing system.

24. **Claims 65, 67 – 70 and 93 - 97** are rejected on the same ground as stated in claim 86 – 90 above.

Response to Arguments

25. Applicant's amendments filed on 11/25/03 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

26. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

27. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lilian Vo whose telephone number is 703-305-7864. The examiner can normally be reached on Monday - Thursday, 7:30am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai An can be reached on 703-305-9678. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Lilian Vo
Examiner
Art Unit 2127

lv
February 6, 2004

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